

CLAIMS

- 1 1. A variable speed maximal torque transmission comprising:
 - 2 a planetary gear set comprising a peripheral ring gear enmeshing a plurality of planet gears and a sun gear in mechanical communication with said plurality of planet gears;
 - 5 a carrier in mechanical communication with said planetary gear set;
 - 6 a motor in mechanical drive communication with said sun gear; and
 - 7 an auxiliary motor driving said peripheral ring gear.
- 1 2. The transmission of claim 1 wherein said carrier enmeshes said plurality of planet gears.
- 1 3. The transmission of claim 1 wherein said ring gear rotates at constant speed.
- 1 4. The transmission of claim 1 wherein said plurality of planet gears is three planet gears.
- 1 5. The transmission of claim 1 wherein said carrier is an output from the transmission.

1 6. The transmission of claim 1 wherein said carrier is coupled to a drive
2 wheel of a vehicle.

1 7. The transmission of claim 1 wherein said auxiliary motor imparts
2 power to said peripheral ring gear to satisfy the relationship $Tr \geq Ts \cdot \frac{Nr}{Ns}$ where Tr is
3 ring gear torque, Ts is sun gear torque, Nr is ring gear tooth number and Ns is sun
4 gear tooth number.

1 8. A process for operating a transmission comprising:
2 turning a planetary gear set with an auxiliary motor through a mechanical
3 engagement of a toothed ring gear encompassing a set of planet gears where said set
4 of planet gears simultaneously engages a toothed sun gear; and
5 driving a carrier mechanically engaging said planetary gear set.

1 9. The process of claim 8 wherein said planetary gear set is turned at a
2 variable speed.

1 10. The process of claim 8 wherein said carrier is a transmission output
2 operative to power a drive wheel of a vehicle.

1 11. The process of claim 8 wherein turning said planetary gear set induces
2 a torque on said carrier by way of a torque on said sun gear that satisfies the equation

$$TRatio = \frac{Tc}{Ts} = \frac{-(Rs + Rr)}{Rs} = -\left(1 + \frac{Nr}{Ns}\right)$$

3 where Tc is the carrier torque, Ts is the sun gear torque, Nr is the tooth number of
4 said ring gear, and Ns is the tooth number of said sun gear.